In the Specification

Applicant submits replacement paragraphs showing insertions with underlining and deletions by strikethrough and/or double bracketing.

Please replace the paragraph beginning on page 12, line 28 with the following amended paragraph:

"Contour length", as discussed herein is a parameter used to characterize a polymer. The contour length of a polymer is its length measured from a first end 32 to a second end 33 of the polymer 30 by tracing the polymer unit to unit while the polymer is in an unstretched state. The "apparent length" of a polymer as used herein is the shortest distance between the first end 32 and the second end 33. Apparent length is measured along a direct line between the first end 32 and the second end 33 of a polymer, meaning that it can be significantly shorter than contour length when a polymer is coiled or hairpinned. When a polymer is aligned yet not elongated, its apparent length will be substantially the same as its contour length. Most DNA and RNA have individual units or base pairs <u>31</u> that are approximately 3.4Å in length. For these polymers, contour length can be calculated by multiplying the number of base pairs <u>31</u> by 3.4 Å.

Please replace the paragraph beginning on page 13, line 15 with the following amended paragraph:

Many polymers, such as DNA can be elongated beyond their contour length. Figure 4 depicts the force associated with elongating a double strand of DNA from its native "balled-up" or coiled state to an aligned state of full contour length and then beyond to the shape of S-DNA. The X-axis of Figure 4 represents the ratio of apparent length over contour length of a double strand of DNA. The Y-axis represents the magnitude of an elongational force applied to the double strand of DNA. Dimensions are not included on the Y-axis, however, points further from the X-axis represent a force of greater magnitude. The relatively flat (horizontal) points on the curve near the Y-axis represent DNA in its "balled-up", or in its coiled, native state. The DNA has base pair <u>31</u> spacing of approximately 3.4 Å in this state. Points along the curve that are further from the Y-axis yet still on the substantially horizontal portion of the curve represent DNA and up to a ratio of about 90%, that is partially untangled. In this state, the DNA (or RNA) still has base pair <u>31</u> lengths of approximately 3.4 Å and is technically known as being "partially

stretched". As additional force is applied to the DNA (or RNA) it is formed into a linear configuration with an overall end-to-end length approximating its contour length. In this state, the DNA (or RNA) is characterized as being "stretched". As additional forces are applied to the DNA (or RNA), it may become "over stretched", with its base pairs 31 being extended to lengths greater than approximately 3.4 Å each. As the graph depicts, over stretching does not initially incur much additional force to be applied to the DNA. However, after the DNA has been stretched to approximately 1.7 times its contour length, the force required to extend it any further increases dramatically. While Figure 4 depicts a force versus elongation curve for DNA and not RNA, the terms "partially stretched", "stretched", and "over stretched" apply to both DNA and RNA.